The Comparative Review of The Impact of Education and Health Expenditures on The Human Development Index in South Kalimantan and Central Kalimantan

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Abstract—The study was motivated by the achievement of HDI delivered a second neighboring province; one of the provinces is older than the other province. The achievement of HDI of the senior provinces is always below the junior province. This research is quantitative descriptive, conducted in 13 districts/cities in South Kalimantan and 14 regencies/cities in Central Kalimantan for the 2010-2018 period. The data used are secondary data obtained from the Central Statistics Agency, analyzed by the panel data regression. The results of the study show that education and health expenditures have significant effects on HDI in South Kalimantan. The variable of health expenditure positively correlated to the HDI, while the education spending variables correlated negatively. The two variables not significantly affect Central Kalimantan. The quality of regional expenditures is what proxies by the flypaper effect phenomenon as the chosen approach. The findings of the research in the two provinces show that there is a phenomenon of the paper effect phenomenon, which means that the regional expenditures in these two provinces are not qualified yet, so the effect has not been felt optimally.

I. INTRODUCTION

The implementation of regional autonomy in Indonesia has been running for 2 (two) decades. However, the fact shows it has not been able to provide an optimal impact on the regions in its implementation, especially in districts/cities. The delegation of authority from the central government to local government, based on Law Number 23 in 2014 Article 9 about the Classification of Government Affairs are:

1) The absolute governmental affairs, which are the Government Affairs, which entirely become the authority of the Central Government.

2) Concurrent governmental affairs, are the Government affairs which are divided between the central government and provincial government and regency/city governments.

3) General government affairs, are the Government Affairs, which become the authority of the President as head of government

The division of authority affairs between the central and local governments (concurrent) is compulsory and optional. Also, it is divided into basic services and non-basic services in compulsory affairs. Education and health are included in the mandatory basic service duties. In the allocation of expenditures, these two mandatory functions are included in the category of mandatory spending (http://www.djp.kemenkeu.go.id). It is the spending or expense which has been regulated by the law with the aim of reducing the problem of regional social and economic inequality. Based on the financial governance of local government:
1. The education budget allocation is 20% of the APBD in accordance with the mandate of the Constitution, Article 31 paragraph (4) and Law number 20 of 2003 concerning the National Education System article 49 paragraph (1).

2. In the provincial, the district or city government, the amount of health budget is allocated a minimum of 10% (ten percent) of the regional income and expenditure budget, excluding salaries (Law No. 36 of 2009 concerning Health).

The HDI of South Kalimantan and Central Kalimantan increased from 2014 to 2019. However, the HDI rank of these two provinces at national level still remained at 21 and 22, and they are still below the national index. Nevertheless, the HDI value of Central Kalimantan is 67.77 in 2014 and 70.92 in 2019 is better than South Kalimantan with an HDI value of 67.63 in 2014 to 70.72 in 2019 (bps, 2019). Based on the composite index for the formation of the HDI, it can be seen that the health dimension in Central Kalimantan Province is better than South Kalimantan. It is known from the Life Expectancy Rate (LER). LER for the 2014 and 2019 periods has increased from 69 years to 70 years in Central Kalimantan, while it was stagnant at 68 years in South Kalimantan.

Meanwhile, the educational dimension can be seen from the School Expectancy Rate (SER). The position of South Kalimantan Province and Central Kalimantan Province in 2019 is the same as the national achievement, namely in 13 years. It means that the children aged 7 years old are expected to attend school activities for 13 years, and they are hoping to go to school up to Diploma 1 level. If it’s seen from the Longest Average of Schooling (LAS), the achievement of Central Kalimantan Province is 9 years better than South Kalimantan and National index which is only 8 years. It means that the average of education, level of the population aged 25 years are only up to grade 2 junior high schools (SMP) and it is up to junior high school graduation in Central Kalimantan. It illustrates that the quality of our workforce is still low.

Paying attention to the condition of HDI from two dimensions which are used as backgrounds, there are regional obligations in terms of education and health contained in the mandate of the law on education budget allocations and health budget allocations. The researchers attracted to formulate the research problems as follows:

1) How is the impact of education and health expenditures on the Human Development Index in South Kalimantan and Central Kalimantan?

2) How is the quality of regional expenditures in South Kalimantan and Central Kalimantan?

The government is an institutional unit formed through a political process, and it has authority in the legislative, judicial and executive branches over other institutional units within a country/region. The government intervention in the economy is carried out in 3 functions according to (Rossen, 2002). The allocation is the role of the government in allocating economic resources to community; the distribution is the government's role in ensuring that all people can access economic resources and also get a decent income; and the stabilization is the role of the government in maintaining macroeconomic stability; the inflation, the equilibration of payments balance, the economic growth.

Through regional autonomy and fiscal decentralization, the local government is authorized to utilize the financial resources of its own and is supported by the financial balances between the central government and the regions. The division of authority follows the rules of money follows function, The decentralization is required to conduct the economic efficiency, cost efficiency, accountability improving, transparency and mobility of funds increasing. There are 3 main missions in implementing regional autonomy according to (Barzelay, 1991), creating the efficiency and effectiveness of local resources management; enhancing the quality of public services and social welfare, and empowering and creating space for community to participate in the development process.

The fiscal decentralization and authority provide the flexibility to the local government in implementing the regional development in order to improve the welfare of the community. The local government is considered to be more aware of what the needs and desires of local communities (local needs and local demand) so that the service delivery will be more responsive, and the welfare of community can be realized (Khusaini). Though, sometimes the local government actually cause inefficiency in the implementation of local finance (Mardiasmo, 2002). It is because in meeting the needs and demands of society and the low level of efficiency in the local finance, in general, the expenditures do not meet the budget plan or it is said that the finance exceeds the budget. To overcome this problem of local finance management, the local governments must be able to carry out their roles optimally through the policy and management instruments. As a policy instrument, the local government must be able to carry out their function as management, and operate the APBD instrument efficiently because the APBD must be able to accommodate the initiatives and various aspirations of the community.
In order to optimize the development budget, the participation the community in regional development is very important. The local government functions only facilitate and provide the incentives to the community so that they have a desire to get involved in regional development because they know what they need in developing. The standard of success for local government is still very traditional in the framework of regional financial implementation. The success is judged through the level of budget absorption (quantity), and it isn’t about the quality of the budget itself. Besides, the success of implementing regional autonomy and fiscal decentralization is largely determined by the quality of spending (Osborne & Gaebler, 1993).

Some studies are used as references such as the variable of DAU, DAK, and DBH are collectively affected the local expenditures in Sulawesi. The fly paper which occurs in this province is affected by DAK. The flypaper effect is a condition which occurs when the local government responds (spending) more (wasteful) by using the balance fund proxies by the General Allocation Fund (DAU) instead of using its own existing capabilities proxies by the Regional Original Income (Armawaddina et.al, 2018). The phenomenon of flypaper effect also occurred in Sumatra. There are some significant effects of DAU and PAD to the regional expenditures with the DAU coefficient is greater than the PAD (Maimunah, 2006).

The results of the study concluded that there is a flypaper effect in the use of DAU. In determining the expenditure policies, the local government is more driven by the amount of DAU received in the current year compared to PAD. Nowadays, the effect of DAU on regional expenditures is stronger than the DAU in previous years. It implies that in determining expenditure policies, the local government is currently more determined by the DAU in the current year than the PAD in the current year. It is similar to the findings (Junaidi, 2012). That flypaper occurred in the local government. The coefficients for DAU\(_{t-1}\) (previous year) is larger than PAD\(_{t-1}\) the previous year. The results of study (Kusumadewi et.al, 2007). Show that they provide an identification of flypaper on regional expenditures between the districts/cities in East Kalimantan. They use the PAD and transfer funds (DAU and DBH) with the analysis of 2005-2011 periods, by using the method of the Pool Least Square. It can be concluded that the level of the effects of local government spending, which is funded by transfer funds (DAU and DBH) are higher than Regional Original Income (PAD). It means that there are symptoms of a flypaper effect on district/city expenditures management in East Kalimantan Province. It reinforces the view that the increase grand transfers will encourage the increasing of regional expenditures, which is compared to the efforts in increasing local revenues (Murniasih dan Mulyadi, 2011).

### II. RESEARCH METHOD

This research is a descriptive quantitative research. The object of research includes 13 districts and cities in South Kalimantan, and 14 districts and cities in Central Kalimantan. The data used is secondary data sourced from the publication of the Central Bureau of Statistics. The analysis tool used is the panel data regression (Gujarati, 2013), the data are a combination of data cross section and time series. The results of panel data analysis will produce 3 models; they are: Polled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM). To determine the best model, the chew test is used to choose whether the model of PLS or FEM. Meanwhile, the Hausman test is used to determine whether the FEM or REM model.

The formulation of the model used in this study in answering problem 1 is as follows:

\[
Y_{at} = \beta_0 + \beta_1 X_{1at} + \beta_2 X_{2at} + \beta_3 X_{3at} + \epsilon_{at}
\]

- \(Y_a\) = HDI
- \(X_{1at}\) = Heath expenditure
- \(X_{2at}\) = Education expenditure
- \(X_{3at}\) = Income Per Capita

The model formulation used in this study in answering problem 2 is as follows:

\[
Y_{at} = \beta_0 + \beta_1 X_{1at} + \beta_2 X_{2at} + \epsilon_{at}
\]

- \(Y_a\) = Regional Expenditure
- \(X_{1at}\) = PAD (Regional Original Income)
- \(X_{2at}\) = DAU (General Allocation Fund)

The flypaper effect is a condition which occurs when the local government responds (spending) more (wasteful) by using the balance fund proxies by the General Allocation Fund (DAU) instead of using its own existing capabilities proxies by the Regional Original Income (PAD), the coefficients for DAU is larger than PAD.
The description of the Regional Revenue and Expenditure Budget (APBD) in the two provinces in 2018, it is known that the APBD (realization) of 13 districts and cities in South Kalimantan experienced an average deficit of IDR 0.12 trillion, when it is compared with the budget deficits (realized) of 14 districts in Central Kalimantan which is relatively smaller. This province has an average budget deficits of IDR 0.06 trillion. The average income and expenditure (realization) of districts and cities in Central Kalimantan is relatively smaller than the other districts and cities in South Kalimantan. From the average revenue in the APBD in districts and cities in Central Kalimantan, it is only 90% of South Kalimantan, and from the average expenditure, it is only 87% of South Kalimantan.

The mean of education spending allocation of the districts and cities in South Kalimantan and Central Kalimantan in 2018 has fulfilled the mandate of the law. Each province has allocated above 20%. South Kalimantan reached 29%, while Central Kalimantan reached 23%. Also, the allocation of health spending in 2018 exceeded the mandate of law. South Kalimantan reached 18% and Central Kalimantan reached 12%. The allocated budget shows the performance through the realization of expenditure for education. In Central Kalimantan, it is realized 100%, while in South Kalimantan only 98%. The health spending in South Kalimantan realized 97%, which is better than the performance of health spending in Central Kalimantan by 96%.

The results of data processing show that the best model chosen for South Kalimantan Province, which is based on the Chow test and the Hausman is the Fixed Effect Model (FEM). It can be seen in Table 1.

Table 1. The Output data processing for South Kalimantan Province
Model FEM

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>60.53241</td>
<td>0.558456</td>
<td>108.3924</td>
<td>0.0000</td>
</tr>
<tr>
<td>X1</td>
<td>1.19E-11</td>
<td>2.06E-12</td>
<td>5.775082</td>
<td>0.0000*</td>
</tr>
<tr>
<td>X2</td>
<td>-3.78E-12</td>
<td>1.01E-12</td>
<td>-3.746364</td>
<td>0.0003*</td>
</tr>
<tr>
<td>X3</td>
<td>1.83E-07</td>
<td>1.74E-08</td>
<td>10.50306</td>
<td>0.0000*</td>
</tr>
</tbody>
</table>

From the view's output, it is known that the only variable X1 (Health Spending), X2 (Education Spending), and X3 (income per capita) are significantly affected to HDI in alpha of 1%. It means that the variable of health spending with a coefficient of 1.19 E-12 with a positive correlation. If the health budget is increased by IDR 100 Billion, it is estimated that it will affect the increase in the HDI of 1.19 points. The variable education spending with a coefficient of -3.78E-12 with a negative correlation, means that if the budget is increased by IDR 100 Billion, it is estimated to affect the decreasing of HDI of 3.78 points. The variable income per capita with a coefficient of 1, 83 E-07 positively correlated, means that if there is an increase of income per capita population of South Kalimantan IDR 10 million, it is estimated to affect HDI improvement of 1.8 points, with the requirements of other factors ceteris paribus.

The results of the data processing output for Central Kalimantan Province with the best model selected by the Random Effect Model (REM) can be seen in Table 2. From the table, it is known that only the X 3 variable (income per capita) has a significant effect on the HDI at alpha 1% with a coefficient of 1.76 E-07 positively correlated. It means that if there is an increase per capita income of the population in Central Kalimantan IDR 10 million, it is estimated to increase the HDI of 1.76 points. From the results of the data on both provinces, it can be seen that the impact of independent variables, especially education spending and health spending are only significant in the South Kalimantan Province. The impacts of these variables are not significant in Central Kalimantan. In addition, it is only health spending, which positively affects to increase the HDI.
Table 2. The Output data processing for Central Kalimantan Province Model REM

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>60.95072</td>
<td>1.859883</td>
<td>32.77127</td>
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<tr>
<td>X1</td>
<td>-1.31E-14</td>
<td>1.08E-11</td>
<td>-0.001213</td>
<td>0.9990</td>
</tr>
<tr>
<td>X2</td>
<td>-8.80E-14</td>
<td>4.65E-12</td>
<td>-0.018921</td>
<td>0.9849</td>
</tr>
<tr>
<td>X3</td>
<td>1.76E-07</td>
<td>4.46E-08</td>
<td>3.944147</td>
<td>0.0002^*</td>
</tr>
</tbody>
</table>

From the average of education spending allocation in 2018, the districts and cities in South Kalimantan and Central Kalimantan have fulfilled the mandate of the law that each allocation has to be above 20% as well as the health spending allocation in 2018. The performance of education spending in Central Kalimantan is 100%, while in South Kalimantan it is only 98%. The realization of health spending in South Kalimantan is 97%, and health spending in Central Kalimantan is 96%. It is very contradictory to the results of data processing considering that only the health spending in South Kalimantan is significant with a positive correlation; meanwhile the education spending is negatively correlated although it is still significant. In Central Kalimantan Province, these two expenditures do not significantly increase the HDI.

The overview of the comparison results between the descriptive analysis of the data and the contradictory data analysis concludes that it is needed to analyze the quality of expenditures of each province, as well as a review of theoretical and empirical findings. The researcher tried to confirm to detect the quality of these expenditures through a calculation to observe the occurrence of the flypaper effect phenomenon in the two provinces. The results of the analysis show that there is a flypaper effect phenomenon with a greater magnitude of impact in South Kalimantan Province than in Central Kalimantan, which is detected from the magnitude of the DAU coefficient compared to PAD. The DAU coefficient in South Kalimantan is 2.49, meanwhile in Central Kalimantan is 2.11, as seen in table 3.

Table 3. Data Processing Output For South Kalimantan and Central Kalimantan Provinces Of the Fly Paper Effect Phenomenon

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kal-Sel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>-2.27E+11</td>
<td>7.95E+10</td>
<td>-2.855.735</td>
<td>0.0052</td>
</tr>
<tr>
<td>PAD</td>
<td>1.442.493</td>
<td>0.472919</td>
<td>3.050.188</td>
<td>0.0029</td>
</tr>
<tr>
<td>DAU</td>
<td>2.490.220</td>
<td>0.255292</td>
<td>9.754.381</td>
<td>0.0000</td>
</tr>
<tr>
<td>Kal-Teng</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>-3.18E+11</td>
<td>5.16E+10</td>
<td>-6.154.607</td>
<td>0.0000</td>
</tr>
<tr>
<td>PAD</td>
<td>1.192.702</td>
<td>0.374817</td>
<td>3.182.096</td>
<td>0.0019</td>
</tr>
<tr>
<td>DAU</td>
<td>2.112.336</td>
<td>0.125119</td>
<td>1.688.256</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

The findings in this study provide an overview of the importance of selective budgeting, and the selection of programs and activities greatly determines the quality of spending. Also, it is very important to make research-based budget allocation policies, so that the public funds have the efficient impacts even the budget is limited. It is necessary to supervise the implementation of the budget. It is not only to pursue the achievements in terms of quantity (quantity), but also to prevent the budgeted activities from changes so that they do not have an impact on improving the welfare of the community (quality).

IV. CONCLUSION

This study concludes that education and health spending have significant effects on HDI in South Kalimantan. If it is observed from the correlation, the health spending variable has positive correlation with HDI, which means that if education spending increases, HDI will increase. Meanwhile, the education spending variable has negative correlation, which means...
that there is an inverse relationship between education spending and HDI achievement. If education spending increases, the HDI will decrease. In Central Kalimantan, both variables are not significant.

The quality of regional spending is proxies by the flypaper effect phenomenon as the chosen approach, given the limitations of researchers in obtaining budget allocations and their realization in detail. The flypaper effect phenomenon is used as a medium to determine the magnitude of the role of DAU in regional spending compared to PAD which describes regional capabilities. The research findings show that both provinces have the same conditions. Based on the previous research, if regional spending relies heavily on the transfer of funds (in this study, the term of DAU is used), the district tends to be wasteful region. It's because they feel rewarded without having to try hard to get the funds.

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